

CLAIMS

1. A pacing lead for a cardiac stimulator comprising:

an elongated, flexible insulating lead body
5 having a proximal end, a distal end and a lumen extending therebetween with an electrode attached to the lead body at the distal end and a terminal pin attached to the proximal end, the lead body including an elongated conductor disposed in the lumen for connecting the electrode to the
10 terminal pin, the lead body dimensioned to be passed through the coronary sinus vein and into a branch of the great coronary vein, the lead body having a zone with a preformed shape configuration immediately proximal to the electrode for engaging a wall of the great coronary vein
15 branch at a predetermined number of discrete, longitudinally spaced points for holding the electrode relatively fixed in position irrespective of forces due to body movements and blood flow in the coronary vein and coronary sinus vein and for decoupling said forces from the
20 lead tip.

2. The lead as in Claim 1 wherein the preformed shape is a wave exhibiting a series of peaks and valleys.

3. The lead as in Claim 1 wherein the series of peaks and valleys lie in a single plane.

4. The lead as in Claim 1 wherein the elongated conductor is helically wound and has an open center.

5. The lead as in Claim 4 wherein the open center of the helically wound conductor is of a size to receive a straightening member therein.

6. The lead as in any one of Claim 2 and 3 wherein the peaks and valleys are located over a length from about 4 to 20 centimeters proximally of the electrode.

7. The lead as in any one of Claims 1 through 6 wherein an outer diameter of the lead body is in a range
35 from about 3 Fr to 5 Fr.

8. The lead as in Claims 2 and 3 wherein the wave has an amplitude in a range from about 0.5 to 4.0

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Sub 30
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centimeters, peak-to-peak.

7 ~~8~~. The lead as in Claim 1 wherein the lead body includes a polymer jacket having a biasing means for imparting the preformed shape.

Sub 3
a 3 10. The lead as in any one of Claims 2 and 3 and further including means located at the peaks and valleys for imparting a shape bias thereat. 9

10 11. The lead as in Claim 10 wherein the means for imparting a shape bias comprises discrete segments of heat shrinkable tubing disposed about the lead body.

11 12. The lead as in Claim 10 wherein the means for imparting a shape bias comprises a shaping coil disposed along a predetermined portion of the lead body.

Sub 4
15 a 4 13. The lead as in Claim 10 wherein the means for imparting a shape bias comprises a premolded polymer element(s) disposed along a predetermined portion of the lead body.

14. The lead as in Claim 1 and further including a plurality additional of electrodes disposed within said zone. 13

15. The lead as in Claim 1 and further including a second lumen in the lead body extending between the proximal end and distal end thereof.

Sub 5
25 a 5 16. The lead as in Claim 15 wherein the conductor is a braided cable.

17. The lead as in Claim 16 wherein the preformed shape is a wave exhibiting a series of peaks and valleys.

18. The lead as in Claim 17 wherein the series of peaks and valleys lie substantially in a single plane.

30 16 19. The lead as in Claim 15 wherein the second lumen is of a size to receive a straightening member therein. 13

Sub 6
a 6 20. The lead as in any one of Claims 15-19 wherein the zone extends over a length from about 4 to 20 centimeters proximally of the electrode.

35 21. The lead as in any one of Claims 15-19 wherein an outer diameter of the lead body is in a range from about 3 Fr to 5 Fr.

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22. The lead as in any one of Claims 17-19 wherein the wave has an amplitude in a range of from about 0.5 to 4.0 centimeters, peak-to-peak.

5 ~~17~~¹⁴ 23. The lead as in Claim ~~16~~¹⁴ wherein the lead body includes a polymer jacket having biasing means for imparting the preformed shape.

~~18~~¹⁵ 24. The lead as in Claim ~~17~~¹⁵ and further including means located at the peaks and valleys for imparting a shape bias thereat.

10 ~~19~~¹⁸ 25. The lead as in Claim ~~24~~¹⁸ wherein the means for imparting the shape bias comprises a shaping coil disposed in the zone.

15 ~~20~~¹⁸ 26. The lead as in Claim ~~24~~¹⁸ wherein the means for imparting a shape bias comprises a premolded polymer element disposed on said lead body.

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